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now in allowable form and hereby respectfully request that the rejection thereto be withdrawn.

Responsive to the rejection of claims 1-4 under 35 U.S.C. § 112, 2nd paragraph, Applicants have amended claims 1-4 in a manner so 5 as to improve the clarity thereof. However, Applicants traverse the Examiners assessment that it is not inevitable that a polarizer would result by providing just any two or more transparent bodies which have different refractive indexes to together in a manner set forth by Applicants in the claims. Applicants submit that such an 10 argument is not directed to the clarity of the claims but to the breadth thereof. In accordance with MPEP § 2173.04, the breadth of a claim is not to be equated with the indefiniteness thereof. Accordingly, Applicants submit that claims 1-4 are now in allowable 15 form and hereby respectfully request that the rejection thereof under 35 U.S.C. § 112, 2nd paragraph, be withdrawn.

Responsive to the rejection of claims 1-4 under 35 U.S.C. § 102(b) as being anticipated by "Fabrication and Observation of 3D Photonic Crystals Composed of Si/SiO₂ with Sub-Micrometer Periods" (Kawakami et al), Applicants have amended claims 1-4 and submit that 20 claims 1-4 are now in condition for allowance.

Claim 1, as amended, recites in part:

wherein the shape of layers...at least one of
25 has a regularly undulated structure along an x-
axis, is uniform along a y-axis, and has a
regularly or non-regularly undulated
structure which has a larger pitch than along
the x-Axis...

Applicants submit that such an invention is neither taught, disclosed nor suggested by Kawakami et al or any of the other cited references, alone or in combination.

5 Kawakami et al teaches a layer structure which has a hexagonal lattice structure defined thereby. As such, within the x-y plane thereof there are periodically spaced projections in any direction that essentially prevent a regularly undulated structure along an x-axis, uniformity along a y-axis, and/or an undulated structure which
10 has a larger pitch along the x-axis from occurring within such a hexagonal lattice structure. Therefore, Applicants submit that Kawakami et al fails to teach or suggest the present invention as set forth in claim 1, as amended.

Furthermore, claim 1, as amended, recites in part:

15 the lamination...being configured for acting against the light such that the light thereby has a component whose incidence direction is not zero from the z-axis in the 3-dimensional or orthogonal coordinates (x, y, z) associated
20 with the polarizer

Applicants submit that such an invention is neither taught, disclosed, nor suggested by Kawakami et al or any of the other cited references, alone or in combination.

25 Kawakami et al discloses a hexagonal lattice structure which has both raised and relief faces that are orthogonal to the z-axis of the disclosed structure. Such orthogonal faces are configured such that light impinging there upon would have a component whose

incidence direction would be zero from the z-axis of the structure. Thus, Kawakami et al fails to teach or suggest the present invention as set forth in claim 1, as amended.

For all the foregoing reasons, Applicants submit that claim 1, 5 and claim 2 depending therefrom, are now in condition for allowance and hereby respectfully request that the rejection thereof based upon Kawakami et al be withdrawn.

Claims 3 and 4, as amended, each recited in part:

10 [a] substrate which has at least one of regularly arranged grooves, regularly arranged linear projections, thin and long projections, and thin and long grooves.

Applicants hereby submit that such an invention is neither taught, 15 disclosed, nor suggested by Kawakami et al or any of the other cited references, alone or in combination.

Kawakami et al discloses a polarizer with a hexagonal lattice structure extending in its x and y directions. Such a structure has regularly spaced relief portions and projections in any given 20 direction. Also, the nature of the structure is such that no relief portion or projection extends for a significant distance in any particular direction. Thus, Kawakami et al fails to teach or suggest the present invention set forth in either of amended claims 3 and 4.

25 For all the foregoing reasons, Applicants submit that claims 3 and 4 are now in condition for allowance and hereby respectfully request that the rejection thereof based upon Kawakami et al be

withdrawn. Applicants have added claim 5-7 in order to further protect the patentable subject matter associated with this invention. Applicants submit that the subject matter of these claims is neither taught, disclosed, nor suggested by the sighted 5 art of record, nor of any new issues raised by such claims.

Applicants submit that new claims 5-7 are in condition for allowance, allowance of which is hereby respectfully requested.

If the Examiner has any questions or comments that would speed prosecution of this case, the Examiner is invited to call the 10 undersigned at 260/485-6001.

Respectfully submitted,



Randall J. Knuth
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RJK/stel0

CERTIFICATE OF MAILING

Encs: Replacement Claims
Marked-up Claims
Petition for Extension of
Time
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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Hon. Commissioner of Patents and Trademarks, Washington, D.C. 20231, on: January 2, 2003.

Randall J. Knuth, Regis. No. 34,644
Name of Registered Representative



Signature
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Date

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From
MARKED-UP CLAIMS

Please amend claim 1 as follows:

1. (Amended) A polarizer [which has the] comprising:

a multilayered structure along a z-axis consisting of two or
more transparent bodies which have different refractive

indexes [,], each said layer having a shape ^{and larger} being ^{which}

5 wherein the shape of layers, each of which is [the] a unit
of lamination of ~~each~~ transparent body, at least one of has a

regularly undulated structure along an x-axis, is uniform along a

y-axis, [or] and has a regularly or non-regularly undulated

structure which [is] has a larger pitch than along the x-axis,

[and has]

the lamination along the z-axis repeating the shape[,] and
[acts] being configured for acting against the light [which] such
that the light thereby has a component whose incidence direction
is not zero from the z-axis in the three-dimensional orthogonal
15 coordinates (x, y, z) associated with the polarizer.

Please amend claim 2 as follows:

2. (Amended) A polarized according to claim 1, wherein the
polarizer has a [more] first refractive medium layer containing
one of Si [or] and TiO₂ as a main component and a [less] second
refractive medium layer containing SiO₂ as a main component.

5

Interview summary →

Does not have to provide...

improve clarity and consistency
nothing from finalizing...

1

Jeff Knapp
(Rej No.: 45,384)

Please amend claim 3 as follows:

3. (Amended) A method for producing a polarizer [which was prepared by] comprising the steps of:

laminating a ~~more~~ ^{first} refractive medium and a ~~less~~ ^{second} refractive medium with a regularly repeating [the] shape, said laminating ^{upon which said laminating is to occur, a single set of} performed by a film-forming method at least partly including ~~the~~ ^{a step of} dry etching ~~on~~ ^{and} a substrate ~~which has at least one of~~ regularly ~~arranged grooves~~ ^{coextending} ~~and~~ ^{a single set of} regularly arranged linear projections, ^{coextending} ~~a single set of~~ [or] thin and long projections, ^{and a single set of} [or] thin and long grooves.

Please amend claim 4 as follows:

4. (Amended) A method of producing a polarizer, [which was prepared by] comprising the steps of:

laminating a [more] first refractive medium which contains one of Si and [or] TiO₂ as a main component and a [less] second refractive medium which contains SiO₂ as a main component with a regularly repeating [the] shape, said laminating performed by a film-forming method at least partly including [the] dry etching on a substrate, said substrate having [which has] at least one of regularly arranged grooves, [or] regularly arranged linear projections, [or] thin and long projections [or] and thin and long grooves.

Please add claims 5-7 as follows:

5. A polarizer according to claim 1, wherein the shape of layers at least one of has a regularly undulated structure along

the x-axis and is uniform along a y-axis.

6. A polarizer according to claim 1, wherein said first refractive medium layer has a first index of refraction, said second refractive medium layer has a second index of refraction, said first index of refraction being greater than second index of
5 refraction.

7. A method for producing a polarizer according to claim 3, wherein said substrate has at least one of thin and long projections and thin and long grooves.